

In the Claims:

The status of the claims is as follows:

1. (Previously Presented) A direct organic fuel cell comprising:

a fluid fuel comprising formic acid;

an anode to which said fluid fuel is directed, said anode having an electrocatalyst associated therewith, said electrocatalyst comprising palladium nanoparticles;

a fluid oxidant;

a cathode to which said fluid oxidant is directed, said cathode electrically connected to said anode; and

an electrolyte interposed between said anode and said cathode.
2. (Original) The direct organic fuel cell of claim 1, wherein said fluid fuel comprises at least 3 M formic acid.
3. (Original) The direct organic fuel cell of claim 1, wherein said anode is disposed within an anode enclosure, said fluid fuel flowable within said anode enclosure.

4. (Original) The direct organic fuel cell of claim 1, wherein the cathode is disposed within a cathode enclosure, said fluid oxidant flowable within said cathode enclosure.

5. (Original) The direct organic fuel cell of claim 1, wherein the electrolyte is an ion exchange membrane.

6. (Original) The direct organic fuel cell of claim 5, wherein said electrolyte is a proton exchange membrane.

7. (Original) The direct organic fuel cell of claim 6, wherein said proton exchange membrane comprises a perfluorosulfonic acid ionomer.

8. (Previously Presented) The direct organic fuel cell of claim 5, wherein said ion exchange membrane is substantially impermeable to said fuel.

9. (Original) The direct organic fuel cell of claim 1, wherein the electrolyte is selected from the group comprising porous silicon, ruthenium oxide, and acid electrolytes.

10. (Previously Presented) The direct organic fuel cell of claim 1, wherein said anode catalyst comprises palladium nanoparticles, said nanoparticles having at least one of a diameter of less than about 15 nm and a radius of curvature less than about 7.5 nm.

11. (Previously Presented) The direct organic fuel cell of claim 1, wherein said anode catalyst comprises palladium nanoparticles, said nanoparticles having at least one of: a diameter of less than about 10 nm and a radius of curvature less than about 5 nm.

12. (Previously Presented) The direct organic fuel cell of claim 1, wherein said anode catalyst comprises palladium nanoparticles, said nanoparticles having at least one of: a diameter of less than about 6 nm and a radius of curvature less than about 3 nm.

13. (Original) The direct organic fuel cell of claim 1, wherein said anode catalyst comprises palladium nanoparticles with a surface area of at least about 5 m²/g.

14. (Original) The direct organic fuel cell of claim 1, wherein said anode catalyst comprises palladium nanoparticles with a surface area of at least about 23 m²/g.

15. (Original) The direct organic fuel cell of claim 1, wherein said anode catalyst comprises palladium nanoparticles with a surface area of at least about 40 m²/g.

16. (Original) The direct organic fuel cell of claim 1, wherein said fuel comprises between about 21% and about 100% by weight of formic acid.

17. (Original) The direct organic fuel cell of claim 1, wherein said fuel comprises between about 25% and about 65% by weight of formic acid.

18. (Original) The direct organic fuel cell of claim 1 wherein said fuel comprises at least about 30% by weight of water.

19. (Original) The direct organic fuel cell of claim 1 wherein said oxidant comprises air and said formic acid has a concentration between about 50% and about 70% by weight.

20. (Original) The direct organic fuel cell of claim 1 wherein said oxidant comprises air and wherein said formic acid has a concentration between about 20% and about 40% by weight.

21. (Original) The direct organic fuel cell of claim 1, wherein the cell is capable of generating a power density of at least about 150 mW/cm^2 when operating at about 21°C .

22. (Original) The direct organic fuel cell of claim 1 wherein the cell is capable of generating a power density of at least about 270 mW/cm^2 when operating at about 21°C .

23. (Original) The direct organic fuel cell of claim 1 wherein the cell is capable of generating an open circuit voltage of at least about 0.8 V .

24. (Original) The direct organic fuel cell of claim 1, wherein said anode catalyst is configured to promote reaction of said formic acid via a direct path that diminishes formation of a CO intermediate.

25-50. (Canceled)

51. (Previously Presented) The direct organic fuel cell of claim 1, wherein said electrocatalyst consists essentially of palladium nanoparticles.